Learn Git and GitHub : Day1 (21stAug2019)

What is Centralized version control (CVC)?

-> Earlier People used to use Centralized version control system by storing the different version of code set in drop box or at any other place
-> In CVC central server is the only place where all the versions of the Projects are stored
-> In CVC at your local you can have the current\Latest version of the project
-> In CVC when you need a previous version project then you have to download it from central system and at the same time you have to remember all the version. Then what in case the central system got crashed.

In case of no Internet connection won't be able to get any version from central repository and to overcome this problem Distributed version control system comes in to the picture.

What is Distributed version control system ?

-> In DVCS Copy of code will be available on all the developers along with the central repository. In that way every developer has the backup of the code

Why GIT is Distributed Version Control System?

-> In case of multiple team members working on a same website can individual can concentrate on the feature he is responsible to develop without interfering other's work.

Why Do we need Version Control System ?

Maintaining versions of code or data helps in analyzing the project at later point of time to Analyse where exactly more time had been taken.

What is Git?

-> Git is a distributed version-control system for tracking changes in source code during software development.
-> It is designed for coordinating work among programmers, but it can be used to track changes in any set of files.

What is Git Bash?

Git Bash is an application for Microsoft Windows environments which provides an emulation layer for a Git command line experience

What is Git Hub?

GitHub is a code hosting platform for collaboration and version control.

Setup Git Bash

Check if Git is setup on your system by accessing windows button and trying to search git. If git Bash appears then git is already installed on system. If not install git using below link:
Download Git :
https://git-scm.com/download/win

Help to setup Git:
https://www.youtube.com/watch?v=J_Clau1bYco

Setup Git Hub

Create a Github account using below url :
https://github.com

Help to setup Git Hub:
https://www.youtube.com/watch?v=J_Clau1bYco

Git Configuration

-> Once the Installation is done then configuration of git would be required which connects git with git hub.
-> To configure the git access Git Bash from windows button Immediately after git setup on system And execute below commands

```
git config --global user.name "ibagga"
git config --global user.email "ishu1070@gmail.com"
```

Check already existing configuration status : What's the github account local git is associated with

```
$ git config --list
```

Create a Local Git Repository\Folder

Create a folder on your local system and you can convert it in to Local Git Repository in **2 ways**

(1) By Initializing-- : One can take a local directory that is currently not under version control, and turn it into a Git repository and later push to remote repository

(2) By Cloning ------: One can clone an existing GitHub repository to further add the changes

a) By Initializing

-> Initializing happens when ***there is no code on remote repository to clone or at the initial stage of the project***

-> End-user have to initialize the local folder using command git init and then push the code to remote repository so that other user can clone and use that project

-> End user has to manually create a repository in Git Hub

-> Now Local repository should be connected with remote repository using below command

```
git remote add origin "https://github.com/ibagga/STE.git"
```

-> To know the status of association of local repository and remote repository use below command: Command to know the local and remote repository connection status : **git remote -v**

-> First check if all the file are tracked Git Status

-> Add all files for tracking Git add - A (To track all files)

What is staging in GIT?

Staging is a time when you modify something in a file or adding a new file all together and don't commit Using command git status(User will be able to see what are the changes happened)

- **Git Commit** to save the branch file changed at Local Repository

```
Git commit -a -m "Comment"
```

Git Push:

Once the Git Commit is done then the next step is to push the changes to GitHub Master Branch

```
Git push origin Master
```

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b) By Cloning

-> Cloning happens in case when code exist on Remote Repository (Git Hub) or In case of already existing or old project

-> New users can clone it on their Local Repository.

Command Used to Clone: git clone https://github.com/ibagga/Trial.git

-> Once the Cloning is done user will get the code available on GitHub

-> Now End user can perform action like push their changes to GitHub using below commands:

* git add - A (To track all files)
* git commit -a -m "Comment"
* git push origin Master

Note*******: In case of cloning there is no need to add remote origin

-> Let say userA has got the latest code from GitHub using Clone and another UserB has again done some changes in one of the file of GitHub repository UserA has cloned. In that UserA will either Fetch or Pull the latest code once again.

Note: Cloning is done only once at starting. After that to get latest code users have to do Pull or Fetch the code.

Git Fetch:

-> In case of downloading remote repository changes to local repository -> Do git fetch git fetch origin master

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-> It will not merge the changes in the local -> However, End user will be able to see the latest code changes with name "remote/origin master" After fetch command execute git branch -a to see the changes

Git Pull = Git Fetch + Git Merge

-> In case of downloading remote repository changes to local repository + merging in to the branch

It will merge the changes in the local

-> Download the project from central to local repository or to update the project in local repository : Command : git pull origin master

Learn Git and GitHub : Day3 (28th Aug2019)

1) How to create a branch in GitHub
2) How to Create a branch in Git
3) How to push a Git Branch to GitHub
4) How to move between different branches in Git

What is Branching

Let's try to understand using an analogy. A software developer has created a project called Amazon.com which has a feature of ordering anything over the Internet. However, at the moment Amazon.com does not contain any payment mechanism. Now Amazon wants to develop the online payment mechanism. Perhaps they want a 3rd party to develop this feature for them. So, for the Integration they have to share the code base to the 3rd party. Well!! Now they are worried that 3rd party should not ruin their existing code and for that reason Branches comes in to the existence. Using a Branch Amazon can take the snapshot of Amazon code base (The new snapshot will be called Branch) and give that to 3rd Party for further development.

Note **: In most of the business scenarios this is rare to work on master branch to avoid project risk. ** Working on Same Master Branch

Git Command to create a new Branch

Git branch firstbranch

Command to Push Newly created branch to GitHub

Git push origin firstbranch

Git command to Navigate between the branches

Git checkout firstbranch